

U.S.S.N. (09/664,082)

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In the Claims:

Please amend the claims as follows:

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1. (Currently amended) A multimode transmission system using TDMA comprising:
- a TDM switch coupled to a data signal, said data signal comprising a plurality of satellite services, said TDM switch multiplexing said data signal into a TDMA signal comprising a plurality of TDMA transmission frames, each TDMA transmission frame having a plurality of downlink frame time slots, wherein each of said downlink frame time slots is dynamically allocated to one of said plurality of satellite services;
- a modulator coupled to said TDM switch and receiving said TDMA signal, said modulator modulating said TDMA signal to generate a modulated TDMA signal; and
- a ~~beam-shaping, power-controlling,~~ transmit antenna comprising beam-shaping and power-controlling systems coupled to said modulator and broadcasting said modulated TDMA signal using at least one downlink beam, said at least one downlink beam having a shape and number determined by said data signal, said beam-shaping and power-controlling systems enabling TDMA switching between shaped beam modes and spot beam modes of said antenna.

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2. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein one of said plurality of services comprises a timing beacon synchronization data signal.

3. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein one of said plurality of services comprises a multi-cast/broadcast data service.

4. (Original) The multimode transmission system using TDMA as recited in claim 3, wherein said multi-cast/broadcast data service comprises a cell-cast function.

5. (Original) The multimode transmission system using TDMA as recited in claim 4, wherein said cell-cast function comprises multi-casting to individual downlink cells within an uplink cell.

6. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein one of said plurality of services comprises a calibration data signal.

7. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein one of said plurality of services comprises a point-to-point data service.

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8. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein each of said plurality of downlink frame time slots is a fixed length of time.

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9. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein each of said plurality of downlink frame time slots is a variable length of time.

10. (Original) The multimode transmission system using TDMA as recited in claim 1, wherein said at least one downlink beam has a variable power assigned to ensure link availability and bit-error-rate performance for a coverage area of said at least one downlink beam.

11. (Original) The multimode transmission system using TDMA as recited in claim 10, wherein a transmission information rate of is altered to ensure link availability and bit-error-rate performance for a coverage area of said at least one downlink beam.

12. (Currently amended) A satellite system comprising:

a ground station;

a satellite in orbit and in communication with said ground station, said satellite having a multimode transmission system using TDMA comprising:

a TDM switch coupled to a data signal, said data signal comprising a plurality of satellite services, said TDM switch multiplexing said data signal into a TDMA signal comprising a plurality of TDMA transmission frames, each TDMA transmission frame having a plurality of downlink frame time slots, wherein each of said downlink frame time slots is dynamically allocated to one of said plurality of satellite services;

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a modulator coupled to said TDM switch and receiving said TDMA signal, said modulator modulating said TDMA signal to generate a modulated TDMA signal; and

~~a beam-shaping, power-controlling, transmit antenna comprising beam-shaping and power-controlling systems~~ coupled to said modulator and broadcasting said modulated TDMA signal using at least one downlink beam, said at least one downlink beam having a shape and number determined by said data signal, said beam-shaping and power-controlling systems enabling TDMA switching between shaped beam modes and spot beam modes of said antenna.

13. (Currently amended) The satellite system as recited in claim + 12, wherein one of said plurality of services comprises a timing beacon synchronization data signal.

14. (Currently amended) The satellite system as recited in claim + 12, wherein one of said plurality of services comprises a multi-cast/broadcast data service.

15. (Currently amended) The satellite system as recited in claim + 12, wherein one of said plurality of services comprises a calibration data signal.

16. (Currently amended) The satellite system as recited in claim + 12, wherein one of said plurality of services comprises a point-to-point data service.

~~+5~~ 17. (Currently amended) A method for satellite system synchronization comprising the steps of:

generating a data signal comprising a plurality of satellite services;

generating a timing signal;

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multiplexing said data signal to generate a TDMA signal having a plurality of downlink frames each downlink frame having a plurality of downlink frame slots, wherein each of said plurality of downlink frame slots is dynamically allocated to one of said plurality of satellite services;

modulating said TDMA signal to generate a modulated TDMA signal;

broadcasting said modulated TDMA signal using at least one downlink beam, said at least one downlink beam having a shape and number determined by said data signal; and

TDMA switching between shaped beam modes and spot beam modes.